

REMARKS

This is in response to the Office action mailed on March 2, 2004, in which the Office withdrew the previous restriction requirement, and rejected claims 1-28. The applicant is appreciative of the withdrawal of the restriction requirement, and requests that the Examiner consider the following remarks and allow claims 1-24 and 26-28.

AMENDED CLAIMS 11-13, 15-17, 21, 22 AND 24 ARE NOT ANTICIPATED  
BY RAU OR COOPER

Claims 11-13, 15-17, 21, 22, 24 and 25 were rejected under 35 U.S.C. 102 due to Rau, and all of the same claims except 16 were also rejected under 35 U.S.C. 102 due to Cooper. The applicant requests the Examiner to find instead that claims 11-13, 15-17, 21, 22 and 24 are patentable, following the above amendments and the following remarks.

The independent claims 11 and 21 have been amended and are believed to be in condition for patentability. Specifically, claim 11 has been amended to include the element of an antenna operably disposed proximate the distal end of the elongated body, similarly to the pre-existing element of claim 1. This element is not disclosed or anticipated by either Rau or Cooper. In particular, the Examiner did not indicate that the original claim 1 is anticipated by either Rau or Cooper, indicating that the amended claim 11 also is not anticipated by either Rau or Cooper.

Claims 12, 13, and 15-17 depend on claim 11 and therefore also are not anticipated by either Rau or Cooper following the current amendment to claim 11. Additionally, claim 16 has been amended to include new limitations, supported for example on pages 14-15 of the specification, and not indicated in Rau. Claim 16 is therefore not anticipated by the cited references.

Claims 21, 22, 24 and 25 were rejected under 35 U.S.C. 102 due both to Rau and to Cooper. Claim 21 has been amended and claim 25 canceled. The amended claim 21 is believed to be in condition for patentability.

In particular, claim 21 has been amended to include the limitations of an elongated ceramic fiber comprising applied surface scratches; and a coating disposed about the elongated ceramic fiber, substantially filling the applied surface scratches, enabling an enhanced flexibility wherein the ceramic fiber can be bent without breaking. This has some overlap with the original claim 25, which limited the reinforcement member of claim 21 wherein the elongated ceramic fiber includes surface scratches that are substantially filled by the coating, enabling a general flexibility wherein the ceramic fiber can be bent without breaking. Further support for this amendment to claim 21 can be found, for example, on page 13, lines 14-16 of the specification.

The Examiner did not cite any instance in Rau or Cooper that anticipated the particular limitations of claim 25. Instead, the Examiner stated that the applicant admits that scratches are inherent to ceramic materials, citing the specification (p. 13, lines 11-14). However, this is separate from applied surface scratches, as opposed to any inherent surface scratches: the specification discloses that "In some instances, surface scratches are intentionally applied to create or enhance certain mechanical characteristics." (p. 13, lines 14-16.) This discloses surface scratches that are not inherent to ceramic materials, but are intentionally applied, as in the applied surface scratches of the amended claim 21.

The specification also discloses that "coating 620 fills the scratches and allows the fibers to be bent and to be incorporated into a braiding or weaving process" (p. 13, lines 17-19). Although it says this is true "[r]egardless of the source

of the scratches", it nevertheless falls under the "certain mechanical characteristics" that are enhanced by intentionally applied scratches. Applied surface scratches may therefore enhance the ability of the fibers to be bent and to be incorporated into a braiding or weaving process, and enhance or create additional mechanical properties that enable an enhanced flexibility wherein the ceramic fiber can be bent without breaking. Applied surface scratches are thereby believed to create unexpected advantages in an elongated ceramic fiber, independent of the attributes of any inherently occurring surface scratches.

Because the limitations of the amended claim 21 are not anticipated by Rau or Cooper, the amended claim 21 is believed to be in condition for patentability. Because claims 22 and 24 depend on claim 21, these claims also are not anticipated by either Rau or Cooper and are believed to be in condition for patentability. The Applicant therefore respectfully requests that the Examiner reconsider and allow claims 11-13, 15-17, 21, 22 and 24.

CLAIMS 1-3, 5 AND 7 ARE NOT RENDERED OBVIOUS  
BY COOPER AND ATALAR

Claims 1-3, 5 and 7 were rejected under 35 U.S.C. 103 due to Cooper in view of Atalar. The applicant requests the Examiner to find instead that claims 1-3, 5 and 7 are patentable, following the above amendments and the following remarks.

Claim 3 has been amended to include limitations not found in Cooper or Atalar, rendering claim 3 non-obvious in light of the cited references. Regarding claims 1-3, 5 and 7, there is no demonstrated suggestion or motivation to combine Cooper and Atalar, either explicitly in the references themselves, or more tenuously in the general knowledge of those in the relevant art or the nature of the problem to be solved. This lack of

motivation to combine references renders claims 1-3, 5 and 7 of the present application non-obvious.

For example, Cooper discusses a vast array of possible embodiments - column 4 is entirely devoted to listing different possible constituent materials and included therapeutic agents, for example - without ever mentioning magnetic resonance imaging. A team of workers with ordinary skill in the art might spend years of research testing the possible embodiments proposed by Cooper, without ever being alerted to the potential for application in magnetic resonance imaging. Conversely, nowhere in Atalar is there found any discussion of reinforcement of the device, or any discussion of a ceramic component, despite a fairly thorough and longer than average disclosure.

Both of these devices thus teach a great deal within their respective arts without ever teaching toward each other, and without ever providing a hint that might direct a person of ordinary skill in the art of one to investigate the other. This only makes sense when the vast breadth of technologies involved in various kinds of medical devices is considered. The unlikelihood of an ordinarily skilled individual staying familiarized with new developments across such a tenuously associated variety of specialties required to include both Cooper and Atalar, is mirrored by the fact that neither Cooper nor Atalar includes in its class or field of search the class number or any field of search number of the other (i.e. classes 424, 606, 623 for Cooper, classes 600, 324 for Atalar).

This post hoc pairing of references therefore goes beyond any suggestion or motivation, either explicitly in the references themselves or from what is well known in the art, that one of ordinary skill in the art would be alerted to in staying competently informed within her own specialty. A motivation ascribed alternately to a nebulous common knowledge in the art would not fairly represent the reality of two separate

communities: one of persons with ordinary skill in the art of magnetic resonance imaging devices, who might consider Atalar well-known in their art, and a separate community of persons with ordinary skill in the art of compression-resistant medical constructs, who might consider Cooper well-known in their art. A single individual who considered these references from disparate specialties well-known, would not be a person of ordinary skill in one art, but rather a person of peculiarly advanced skills in a polymathic range of arts, compared to whose talent little if anything might not be obvious.

In the absence of any explicit demonstration of a suggestion or motivation to combine Cooper and Atalar, it is simply too far a stretch to find that these two references could operate together to demonstrate obviousness. Instead, an obviousness finding must comply with the requirements that the teachings of the references can be combined only if there is some suggestion or incentive to do so, and that such a showing of suggestion, teaching or motivation to combine the prior art references is an essential component of an obviousness finding.

Additionally, claim 3 has been amended to include new limitations that are not taught or suggested by Cooper or Atalar, similar to the limitations of the old claim 25, which the Examiner did not indicate was taught or suggested by Cooper or Atalar. This provides a second, independent rationale for claim 3 not being obvious due to Cooper or Atalar.

The Applicant therefore respectfully requests that the Examiner reconsider and allow claims 1-3, 5 and 7.

CLAIMS 4, 14 AND 23 ARE NOT RENDERED OBVIOUS  
BY RAU AND PINCHUK OR BY COOPER, ATALAR AND PINCHUK

Claims 14 and 23 were rejected under 35 U.S.C. 103 due to Rau in view of Pinchuk, while claims 4, 14 and 23 were rejected under 35 U.S.C. 103 due to Cooper or Cooper in view of

Atalar and Pinchuk. The applicant requests that the Examiner find instead that claims 4, 14 and 23 are patentable, following the above amendments and the following remarks.

Claim 14 incorporates the limitations of claim 11 as amended, including elements not disclosed by either Rau or Pinchuk. Claim 23 incorporates the limitations of claim 21 as amended, including elements not disclosed by Rau, Pinchuk, Cooper or Atalar. These additional limitations are believed to render inapplicable much of the reasoning for rejecting claim 14 and 23.

In addition, neither Rau and Pinchuk, nor Cooper, Atalar and Pinchuk teach, suggest or motivate one of ordinary skill in the art to combine elements from their separate disclosures into the combinations proposed in the Office action, nor is such a motivation inherent in the common knowledge in the art. Claims 4, 14 and 23 are therefore not obvious in view of the cited references.

Neither Rau, nor Cooper, nor Atalar mentions the possibility of pyrolytic carbon, whether as a coating or in any context. In fact, Rau, Cooper and Atalar all disclose impressive laundry lists of alternative constituent materials, in apparent attempts to identify the possibilities exhaustively, yet despite all that circumspection, fail to disclose pyrolytic carbon. That all three of these references taught so many other constituent materials without teaching pyrolytic carbon implies that a pyrolytic carbon coating was not contemplated by Rau, Cooper or Atalar despite substantial effort, and by implication, was not obvious to one of ordinary skill in the art. Indeed, if one of ordinary skill in the art followed the teachings of Rau, Cooper and Atalar, that individual could spend a very long time experimenting with all the many varieties of coating materials that Rau and Atalar teach, and additional constituent materials that Rau, Atalar and Cooper teach, and would only hit upon a pyrolytic carbon coating by disregarding these exhaustive lists.

Whether or not this constitutes teaching away per se, it would seem to have a similar effect.

Additionally, among Rau's disclosure of suitable reinforcement materials, Rau includes highly magnetic materials such as stainless steel, thereby showing no distinction between reinforcement components that are suitable for magnetic resonance imaging and those that are not. Rau also discloses reinforcement components having sphere or particulate forms, which are substantially unrelated to the elongated ceramic member of claim 11 or the elongated ceramic fiber of claim 21. Rau therefore teaches away from the present invention, and contradicts the possibility of a suggestion or motivation to import elements of Rau into the field of devices for magnetic resonance imaging.

As for Pinchuk, the Office action reads that "Pinchuk teaches that pyrolytic coatings are well known for their biocompatibility"; but that is not quite an accurate characterization of Pinchuk. Pinchuk reads "It is also possible to coat these materials with... pyrolytic carbon..." (one of six species and three genera of possible materials mentioned in this sentence). Pinchuk here mentions coating with pyrolytic carbon; but disclosing the thing itself is materially different than establishing that the thing is well known, a significant distinction when evaluating motivation. It indicates that besides there being no apparent indication in Pinchuk of an explicit motivation to combine, there is also no demonstrated implied motivation due to being well known in the art.

Furthermore, Pinchuk not only does not provide a motivation to combine references with Rau, but explicitly motivates against and teaches away from such a combination. Among the other materials listed by Pinchuk are materials such as stainless steel, that would present substantial magnetic interference with the operation of a magnetic resonance imaging device. Pinchuk therefore teaches away from the technology of the

present claims, which involve magnetic resonance imaging. This further demonstrates that the combination of Pinchuk with other references is not a supportable rationale to show obviousness of these claims.

Since a showing of motivation to combine is not found, either explicit in the references, or implied by what is well known in the art or the nature of the problem to be solved, there is no prima facie showing of obviousness. This is further supported by the evidence that Pinchuk teaches away from the nature of the present invention. The Applicant therefore respectfully requests that the Examiner reconsider and allow claims 4, 14 and 23.

CLAIMS 6 AND 16 ARE NOT RENDERED OBVIOUS

BY COOPER, ATALAR AND RICHTER

Claims 6 and 16 were rejected under 35 U.S.C. 103 due to Cooper, or Cooper in view of both Atalar and Richter. The applicant requests the Examiner to find instead that claims 6 and 16 are patentable, following the above amendments and remarks, including those dealing with the lack of motivation to combine the disclosures of Cooper and Atalar, as discussed with reference to claims 1-3, 5 and 7. If Cooper and Atalar do not have any demonstrated motivation to be combined, as indicated above, there cannot be a motivation further to combine Cooper and Atalar with Richter.

Additionally, claims 6 and 16 have been amended to include new limitations not indicated in Richter or the other cited references. These amended elements include a woven layer including a ceramic fiber woven together with non-ceramic fibers into the woven layer, such as is disclosed in the specification, on pages 14-15 for example. This is not indicated to be disclosed in Richter. It is believed that claims 6 and 16 as amended are not obvious due to any indicated combination of references. The



Applicant therefore respectfully requests that the Examiner reconsider and allow claims 6 and 16.

CLAIMS 8-10, 18-20 AND 26-28 ARE NOT RENDERED OBVIOUS  
BY RAU AND VÄLIMAA OR BY COOPER, ATALAR AND VÄLIMAA

Claims 18-20 and 26-28 were rejected under 35 U.S.C. 103 due to Rau in view of Välimaa, and due to Cooper, or Cooper in view of both Atalar and Välimaa. Claims 8-10 were rejected under 35 U.S.C. 103 due to Cooper, or Cooper in view of both Atalar and Välimaa. The applicant requests the Examiner to find instead that claims 8-10, 18-20 and 26-28 are patentable, following the above amendments and the following remarks.

Claims 18-20 are dependent on the currently amended claim 11; claims 26-28 are dependent on the currently amended claim 21. The above amendments have added limitations to all these claims that are not found in Rau, Cooper, Atalar or Välimaa. These references therefore no longer suffice for a prima facie demonstration of obviousness for claims 18-20 and 26-28. Since there is no other indication that these claims are obvious, or that a teaching, suggestion or motivation exists in the references or in the common knowledge in the art to combine these references in the permutations provided, it is believed these claims are now in patentable condition.

Claims 8-10 are dependent on claim 1, and like claim 1, each defines a combination of elements that is not taught, suggested or motivated by a post hoc combination of Cooper and Atalar, nor by the further introduction of Välimaa. Furthermore, Välimaa's discussion of ceramics would not lend itself to suggesting a combination covering the limitations of claims 8-10, because it is concerned with ceramic particulate or powder to enhance image quality in the quite separate field of radiography. Only once, in a passage unconnected with the remainder of the discussion of ceramics, does Välimaa mention ceramic fibers

(column 2, lines 35-40). The entire discussion of specific constituents of ceramic, such as silicon carbide, are in the context of powder or particulate for enhancing radiographic imaging (e.g. column 6, line 43 through column 7, line 14; claims 1, 11-12). There is also a single mention of "ceramic carbide", in claim 19, and unsupported in the detailed description. There is no apparent connection between the mention of ceramic fibers for reinforcement in column 2, and the discussion of silicon carbide for improving visibility in radiography (e.g. columns 6 and 7), with that silicon carbide being in particulate form (e.g. claims 11-12). It is not supportable to assert that these two separate mentions disclose the element of using a silicon carbide material or a carbon material in an elongated ceramic member comprised in a reinforcement mechanism, or an elongated ceramic fiber comprised in a reinforcement member.


Because its teaching is unrelated to the problems and functions at issue in Rau, Cooper and Atalar, there is no motivation to combine the disclosure of Välimaa with the latter references. A person of ordinary skill in the art of the present application, searching for solutions to the problems addressed by the present application, would not be motivated to investigate the unrelated issues addressed in Välimaa. The Applicant therefore respectfully requests that the Examiner reconsider and allow claims 8-10, 18-20 and 26-28.

In light of the above amendments and remarks, the applicant respectfully requests that the Examiner find that claims 1-24 and 26-28 are not anticipated or rendered obvious by the cited references, and to allow these claims to issue.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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